

Herbicide performance in soybeans at Waseca, MN giant ragweed site in 2004. Hoverstad, Thomas R and Jeffrey L. Gunsolus. The objective of this trial was to evaluate soybean weed management systems available to producers in southern Minnesota on several annual weed species. This site had a particularly high infestation of giant ragweed. The research site was a Nicollet clay loam soil containing 7% organic matter with a pH of 7.2 and soil test P and K levels of 35 and 196 ppm, respectively. The previous crop was corn that had been moldboard plowed in the fall of 2003. The entire area was field cultivated once in the spring prior to herbicide application. Following preplant incorporated treatments the entire area was field cultivated twice to a depth of 3 to 4 inches to incorporate herbicides and prepare a seedbed. Asgrow '2105' soybeans were planted on May 17, 2004 in 30-inch rows. All treatments were applied with a tractor-mounted sprayer delivering 20 gpa at 40 psi using 8002 flat-fan nozzle tips. Visual estimates of weed control were taken on September 28, 2004. Application dates, environmental conditions, crop and weed stages are listed below.

| Date | May 17 | May 18 | June 18 | June 25 | July 8 |
|-----------------------------------|--------|--------|--------------|--------------|-------------|
| Treatment | | | Post I | Post II | Post III |
| Application Stage | PPI | Pre | 4-inch weeds | 6-inch weeds | Crop canopy |
| air temp °F | 67 | 70 | 62 | 70 | 74 |
| soil temp (4-inch) | 58 | 66 | 68 | 65 | 70 |
| Relative humidity (%) | 50 | 30 | 25 | 30 | 35 |
| Wind | W 4 | SW 8 | N 9 | N 4 | W 2 |
| Soil moisture | Moist | Moist | Moist | Moist | Moist |
| Soybeans | | | | | |
| Stage | - | - | V2 | V3 | R1 |
| height (inch) | - | - | 5 | 6 | 13 |
| Giant foxtail | | | | | |
| leaf no. | - | - | 3 | 4 | 3-4 |
| height (inch) | - | - | 3-4 | 5-7 | 4 |
| Giant ragweed | | | | | |
| leaf no. | - | - | 2-4 | 4-5 | 2-3 |
| height (inch) | - | - | 6 | 6-9 | 3 |
| Common lambsquarters | | | | | |
| leaf no. | - | - | 4-6 | 8-10 | 4 |
| height (inch) | - | - | 2-3 | 4 | 3-4 |
| Rainfall after application (inch) | | | | | |
| week 1 | 2.13 | 2.58 | 0.37 | 0.85 | 2.49 |
| week 2 | 1.41 | 0.98 | 0.11 | 2.95 | 1.85 |
| week 3 | 0.49 | 0.49 | 2.09 | 2.49 | 0.34 |

The dominant weeds in this trial were giant ragweed and giant foxtail. Giant ragweed control was poor with pendimethalin followed by imazamox plus acifluorfen. Giant ragweed control was also poor with [pendimethalin & imazethapyr] followed by bentazon plus sethoxydim. Sulfentrazone followed by fomesafen plus quizalofop-P also resulted in poor giant ragweed control. Postemergence fomesafen plus [fluazifop-P & fenoxaprop] plus thifensulfuron also provided poor control of giant ragweed. Common lambsquarters control was poor with postemergence fomesafen plus [fluazifop-P & fenoxaprop] plus cloransulam. (University of Minnesota, Southern Research and Outreach Center, Waseca, MN and Dept of Agronomy and Plant Genetics, University of Minnesota, St Paul).

Table. Herbicide performance in soybeans at Waseca, MN giant ragweed site in 2004 (Hoverstad and Gunsolus).

| Treatment ^a | Rate (lb/A or %) | SETFA | AMBTR | CHEAL | Yield Bu/A ^b |
|--|---|-----------------------|-------|-------|----------------------------|
| | | -----(% control)----- | | | |
| <u>Preemergence</u> | | | | | |
| Pend/[Flmx&clsm] | 1.2+[0.1&0.3] | 96 | 96 | 99 | 53.3 |
| <u>Preplant incorporate 2X/POST I (4-inch weeds)</u> | | | | | |
| Pend ¹ /Immx+Acif+NIS+AMS | 1.3/0.03+0.125+0.25%+2.5 | 96 | 20 | 99 | 11.9 |
| [Pend&imep]/Bent+Seth+NIS+AMS | [0.84&0.06]/[1.0&0.2]+0.25%+2.5 | 99 | 28 | 99 | 20.5 |
| Pend ¹ /[Glyt&imep]+NIS+AMS | 1.3/[0.75&0.063]+0.125%+2.5 | 99 | 95 | 99 | 49.4 |
| <u>Preemergence/ POST I (4-inch weeds)</u> | | | | | |
| Flmx+Clsm/Lact+V10137+AMS | 0.1+0.03/0.16+0.125+2 | 97 | 87 | 99 | 47.3 |
| Pend/ Clsm+Clet+Lact ¹ +COC+AMS | 1.2/ 0.016+0.125+0.09+1%+2.5 | 99 | 74 | 99 | 40.6 |
| [S-meto&metr]/ Fome+[Flfp-P&fenx]+COC+AMS | [1.0&0.23]/ 0.235+[0.125&0.035]+1%+2.5 | 96 | 80 | 99 | 38.4 |
| Suen/ Fome+Qufp-P+COC+AMS | 0.25/ 0.235+0.06+1%+2.5 | 97 | 63 | 99 | 32.4 |
| <u>Preemergence/ POST I (6-inch weeds)</u> | | | | | |
| Alac/Glyt+AMS | 2/0.94+2.5 | 99 | 97 | 99 | 52.1 |
| Pend ¹ +Dime-P/Glyt+AMS | 0.48+0.59/0.94+2.5 | 99 | 96 | 99 | 52.1 |
| [Flmx&clsm]/Glyt+AMS | [0.05&0.016]/+0.94+2.5 | 99 | 99 | 99 | 51.1 |
| [S-meto&metr]/Glyt ² +AMS | [0.8&0.20]/1.1+2.5 | 99 | 99 | 99 | 50.3 |
| Flmx/Glyt+AMS | 0.06/0.94+2.5 | 99 | 93 | 99 | 48.1 |
| Flmx+Flms/Glyt+AMS | 0.05+0.02/0.94+2.5 | 99 | 98 | 99 | 52.4 |
| Suen/Glyt+AMS | 0.19/0.94+2.5 | 99 | 96 | 99 | 49.2 |
| <u>POST I (4-inch weeds)</u> | | | | | |
| Fome+[Flfp-P&fenx]+ Thif+COC+AMS | 0.23+[0.156&0.044]+ 0.002+1%+2.5 | 93 | 43 | 99 | 25.7 |
| Fome+[Flfp-P&fenx]+ Clsm+COC+AMS | 0.23+[0.156&0.044]+ 0.016+1%+2.5 | 94 | 90 | 50 | 38.6 |
| <u>POST I (4-inch weeds)/POST III(Canopy)</u> | | | | | |
| Glyt+AMS/Glyt+AMS | 0.94+2.5 / 0.94+2.5 | 99 | 99 | 99 | 51.2 |
| <u>POST II (6-inch weeds)</u> | | | | | |
| GF 1279+Clsm+AMS | 1+0.016+2.5 | 99 | 92 | 99 | 47.3 |
| Glyt ³ +AMS | 1+2.5 | 99 | 93 | 99 | 47.1 |
| GF 1279+AMS | 1+2.5 | 98 | 92 | 99 | 45.0 |
| Glyt+AMS | 0.94+2.5 | 99 | 92 | 99 | 43.0 |
| <u>Checks</u> | | | | | |
| Weedy | - | 0 | 0 | 0 | 4.2 |
| Hand-Weeded | - | 100 | 100 | 100 | 47.9 |
| | LSD (0.10) | 3 | 16 | 14 | 7.2 |

^a Acif = acifluorfen = Ultra Blazer 2L; alac= alachlor = IntRRo 4EC; Bent = bentazon = Rezult B; Clet = clethodim = Select2EC; Clsm = cloransulam = FirstRate 84WG; Dime-P = dimethenamid-P = Outlook 6L;[Flfp-P&fenx] = [fluazifop-P & fenoxaprop] =Fusion 2.56L; Flms = flumetsulam = Python 80DF; Flmx = flumioxazin = Valor SX 51DF; [Flmx&clsm] = [Flumioxazin & cloransulam] = Gangster; Fome= fomesafen = Flexstar 1.88L; Glyt = glyphosate = Roundup Weather Max; Glyt² = glyphosate = Touchdown Total; Gyt³ = glyphosate = Clearout 41 Plus; [Glyt&imep] = [glyphosate & imazethapyr] = Extreme 2.17L; Immx = imazamox = Raptor 1L; Lact = lactofen = Phoenix 2L; Lact¹ = lactofen = Cobra 2L; Pend = pendimethalin = Pendimax 3.3 L; Pend¹ = pendimethalin = Prowl 3.8 H2O; [Pend&Imep] = [pendimethalin & imazethapyr] = Pursuit Plus 2.9L; Qufp-P = quizalofop-P = Assure II 0.88L; Seth = sethoxydim = Rezult G; [S-meto&metr] = [S-metolachlor & metribuzin] = Boundary 6.5L; Suen = sufentrazone = Authority 75DF; Thif = thifensulfuron =Harmony GT 75DF; AMS = spray grade ammonium sulfate; COC = crop oil concentrate, Class Additive 17%; NIS = nonionic surfactant, Class Preference.

^b Yield adjusted to 13% moisture.